CHAPTER 4E. PEDESTRIAN CONTROL SIGNALS

Section 4E.01 Pedestrian Signal Heads

The following is added to this section:

Standard:

Signal design shall provide for or prohibit pedestrian movements.

Section 4E.06 Accessible Pedestrian Signals

The following is added to this section:

Option:

New signalized intersections and planned upgrades to signalized intersections that are equipped with pedestrian crosswalks as well as the following characteristics may be considered for accessible pedestrian signals when the need and viability are confirmed by an engineering study:

a. Intersections near blind centers and senior centers
b. Transit terminals
c. T-type intersections
d. Wide intersections
e. Intersections with unusual geometry
f. Skewed intersections
g. Mid-block crosswalks
h. Intersections with exclusive phasing
i. Intersections with leading pedestrian intervals
j. Intersections with frequent side street calls, and;
k. Intersections with high turning volumes

Option:

The installation of Audible Accessible Pedestrian Signals may be considered when an engineering study and evaluation have been conducted and the following minimum conditions have been met:

a. The proposed intersection crosswalk must be signalized.
b. The audible devices should be retrofittable to the existing traffic signal hardware.
c. The signalized intersection should be equipped with pedestrian push buttons.
c. The selected crosswalk must be suitable for the installation of audible signals, in terms of surrounding land use and traffic patterns.
e. There must be a demonstrated need for the audible signals in the form of a request from an individual or group that would use the audible signal.
f. The individual or group requesting the device should agree to train the visually impaired users of the audible signals.

Guidance:

If the “Cuckoo” /“Peep-Peep” walk sound is chosen, the audible devices selected should emit a “Cuckoo” walk sound for North-South direction and a “Peep-Peep” walk sound for a crosswalk in the East-West direction.

Standard:

The tone of the walk signal shall not be similar to the pushbutton locator tones.

Section 4E.101 Financing

Standard:

The cost of installing Audible Pedestrian Signals shall be shared with the local agency in the same manner as a traffic signal. See Section 4B.104.

CHAPTER 4F. TRAFFIC CONTROL SIGNALS FOR EMERGENCY VEHICLE ACCESS

Support:

No Comments.

This MUTCD Chapter is adopted as is for California.

CHAPTER 4G. TRAFFIC CONTROL SIGNALS FOR ONE-LANE, TWO-WAY FACILITIES

Support:

No Comments.

This MUTCD Chapter is adopted as is for California.

CHAPTER 4H. TRAFFIC CONTROL SIGNALS FOR FREEWAY ENTRANCE RAMPS

Support:

No Comments.

This MUTCD Chapter is adopted as is for California.

CHAPTER 4I. TRAFFIC CONTROL FOR MOVABLE BRIDGES

Support:

No Comments.

This MUTCD Chapter is adopted as is for California.

CHAPTER 4J. LANE-USE CONTROL SIGNALS

Support:

No Comments.

This MUTCD Chapter is adopted as is for California.

CHAPTER 4K. FLASHING BEACONS

Section 4K.01 – General Design and Operation of Flashing Beacons

The following is added to this section:

Support:

Typical applications for flashing beacons include the following:

1. Signal Ahead
2. Stop Signs
3. Speed Limit Signs
4. Other Warning and Regulatory Signs
5. Schools
6. Fire Stations
7. Intersection Control
8. Freeway Bus Stops
9. At Intersections Where a More Visible Warning is Desired.

Typical uses include:

1. Obstructions in or immediately adjacent to the roadway.
2. Supplemental to advance warning signs.
3. At mid-block crosswalks.
4. At intersections where a warning is appropriate.

Option:

Only warning, regulatory or construction signs may be supplemented by flashing beacons.

Section 4K.02 Intersection Control Beacon

The following is added to this section:

Standard:

New installations of overhead intersection control flashing beacon shall consist of red indications for each approach.

The cost of installing an Intersection Control Beacon and intersection lighting shall be shared with the local agency in the same manner as a traffic signal.

Section 4K.101 Warning Beacon Financing

Standard:

The cost of installing a Warning or Regulatory Sign Flashing Beacon on a State highway shall be at 100% State expense.

Section 4K.102 Signal Ahead Flashing

Option:

Yellow flashing beacons may be used with Signal Ahead (W3-3) signs in advance of:

1. An isolated traffic signal on either a conventional highway or on an expressway in a rural area.
2. The first traffic signal approaching an urban area.
3. Any traffic signal with limited approach visibility, or where approach speeds exceed 80 km/h (50 mph).

On divided highways where the median is 2.5 m (8 ft) wide, or greater, the installation may consist of:

1. Two Type 1 standards, each with a Signal Ahead (W3-3) sign and a 300 mm (12 in) signal face, with one standard located in the median and the other off of the right shoulder; or

2. A Type 9 cantilever flashing beacon installation with a Signal Ahead (W3-3) or SIGNAL AHEAD (W3-3a) sign and two 300 mm (12 in) signal faces as shown in the Department of Transportation's Standard Plans. See Section 1A.11 for information regarding this publication.

The above installation designs may result in noncompliance with the Department of Transportation's Highway Design Manual mandatory standards for horizontal clearance and shoulder width, and the advisory design standard for clear recovery zones. If such nonstandard features cannot be avoided, the designer must obtain approval in accordance with Topic 82 of the Department of Transportation's Highway Design Manual and the current instructions pertaining to exceptions from mandatory and advisory design standards. See Section 1A.11 for information regarding this publication.

On undivided highways or on highways where the median is less than 2.5 m (8 ft) wide, the installation may consist of a single standard located off of the right shoulder as described for use on divided highways, or it may be a Type 9 cantilever flashing beacon installation.

Support:

The cost of installing a Signal Ahead Flashing Beacon is normally included in the traffic signal project and the cost shared with the local agency.

Section 4K.103 Flashing Beacons at School Crosswalks

Option:

Flashing beacons at school crosswalks may be installed on State highways in accordance with CVC Sections 21372 and 21373.

Flashing yellow beacons may be installed to supplement standard school signing and markings for the purpose of providing advanced warning during specified times of operation when justified.

A flashing yellow beacon may be justified when ALL of the following conditions are fulfilled:

1. The uncontrolled school crossing is on the "Suggested Route to School"; and
2. At least 40 school pedestrians use the crossing during each of any two hours (not necessarily consecutive) of a normal school day; and
3. The crossing is at least 180 m (600 ft) from the nearest alternate crossing controlled by traffic signals, stop signs or crossing guards; and
4. The vehicular volume through the crossing exceeds 200 vehicles per hour in urban areas or 140 vehicles per hour in rural areas during the same hour the students are going to and from school during normal school hours; and
5. The critical approach speeds exceeds 55 km/h (35 mph) or the approach visibility is less than the stopping sight distance.

Standard:

If school authorities are to operate flashing yellow beacon, an inter-agency agreement shall be executed to assure designations of a responsible adult to operate the beacon controls and to provide accessibility for necessary equipment maintenance.

Where traffic signals and/or flashing beacons are justified only by the School Area Traffic Signal Warrant on a State highway, the installation shall be at 100% State expense. When any other warrant is met also, the cost is shared in the usual manner.

Support:

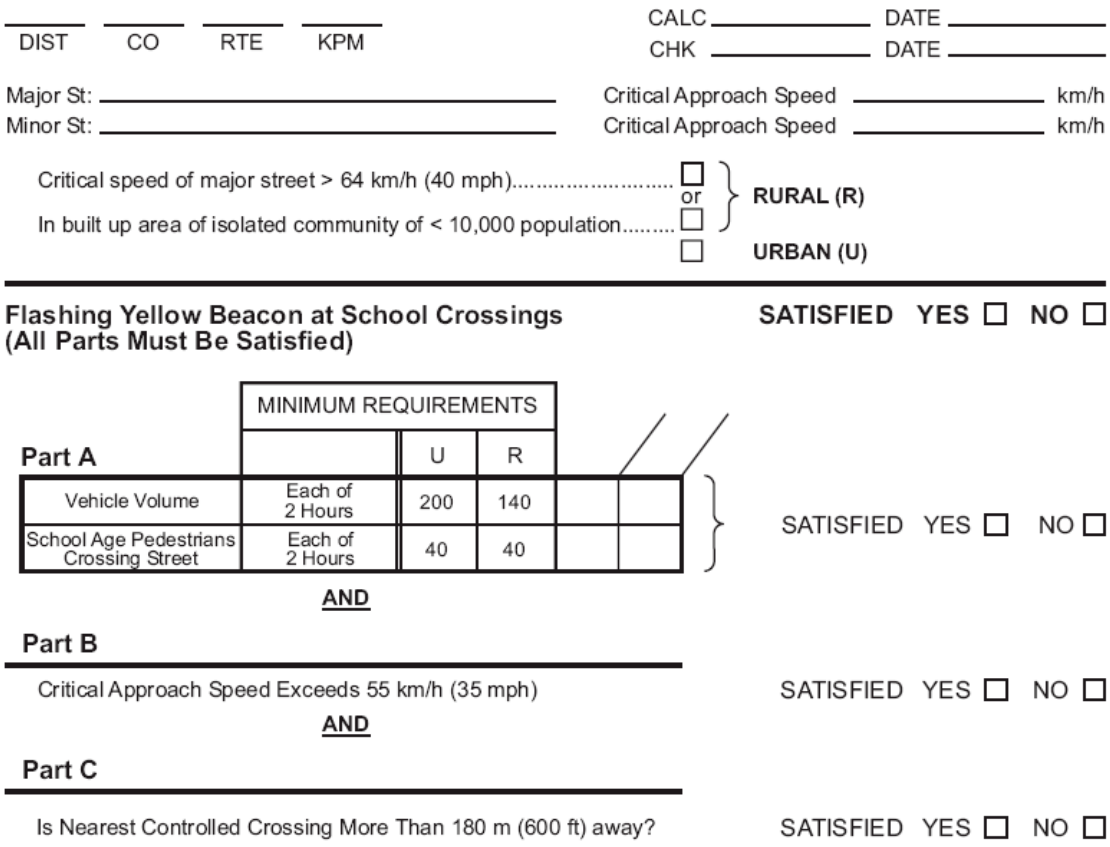
Figure 4K-101 shows the worksheet for flashing beacon at school crossings.

Section 4K.104 Speed Limit Sign Beacon

Guidance:

When a Speed Limit Sign Flashing Beacon is installed at the request of a local agency, or installed by the local agency under an encroachment permit the costs of installing and maintaining the beacon should be at 100% local agency expense.

Figure 4K-101. Flashing Beacon at School Crossings Worksheet



Section 4K.105 Flashing Beacons for Fire Stations

Option:

Flashing beacons at fire station driveways or at intersections immediately adjacent to a fire station may be installed on State highways.

Standard:

The flashing beacon shall be used only to supplement an appropriate warning or regulatory sign. The flashing beacon shall be actuated from an non-illuminated condition by a switch at the fire station.

The costs of installing and maintaining the flashing beacon for the fire station shall be at 100% local agency or fire department expense.

Section 4K.106 Stop Sign Flashing Beacons

Support:

A Stop Sign Flashing Beacon consists of one or two signal sections with a flashing circular red indication in each section.

Standard:

The bottom of the housing of a Stop Sign Flashing Beacon shall not be less than 305 mm (12 in) nor more than 610 mm (24 in) above the top of the stop sign.

The cost of installing a Stop Sign Beacon shall be shared with the local agency in the same manner as a traffic signal.

Section 4K.107 Flashing Beacons at Bus Stops on Freeway Interchanges

Option:

At locations of approved bus stops within interchange areas, a flashing beacon may be provided near the top of a lighting standard to provide a flag stop.

Standard:

The following design and operational requirements shall be met:

1. **A push button shall be provided on the lighting standard with a sign explaining the purpose and operation. The sign shall state that if no bus has arrived within 15 minutes (or other time) after the button has been actuated it will be necessary to actuate it again.**
2. **The flashing beacon shall consist of a 200 mm (8 in), signal section with an uncolored or white lens mounted on the lighting standard in such a position that an approaching bus driver can see it on the freeway.**
3. **The operation of the control shall be such that the flashing beacon will operate for 15 minutes after the button has been actuated and then go out.**

The cost of installing and maintaining Flashing Beacons at Bus Stops on Freeway Interchanges shall be 100% State expense.

CHAPTER 4L. IN-ROADWAY LIGHTS

Section 4L.02 In-Roadway Warning Lights at Crosswalks

The following is added to this section:

Standard:

In-Roadway Warning Lights shall not be placed on or within the crosswalk markings. If the In-Roadway Warning Lights are activated by a push button, the CA Code R62E sign (PUSH BUTTON FOR PEDESTRIAN WARNING LIGHTS, CROSS WITH CAUTION) shall be used.

The following shall be considered when evaluating the need for In-Roadway Warning Lights:

a. Whether the crossing is controlled or uncontrolled.

b. An engineering traffic study to determine if In-Roadway Warning Lights are compatible with the safety and operation of nearby intersections, which may or may not be, controlled by traffic signals or STOP/YIELD signs.

c. Standard traffic signs for crossings and crosswalk pavement markings are provided.

d. At least 40 pedestrians regularly use the crossing during each of any two hours (not necessarily consecutive) during a 24-hour period.

e. The vehicular volume through the crossing exceeds 200 vehicles per hour in urban areas or 140 vehicles per hour in rural areas during peak-hour pedestrian usage.

f. The critical approach speed (85th percentile) is 45 mph or less.

g. In-Roadway Warning Lights are visible to drivers at the minimum stopping sight distance for the posted speed limit.

h. Public education on In-Roadway Warning Lights is conducted for new installations.

Option:

Overhead or roadside Flashing Yellow Beacons may be installed in conjunction with In-Roadway Warning Lights. In-Roadway Warning Lights may be installed independently, but are not necessarily intended to be a substitute for standard flashing beacons. Engineering judgement should be exercised.

Guidance:

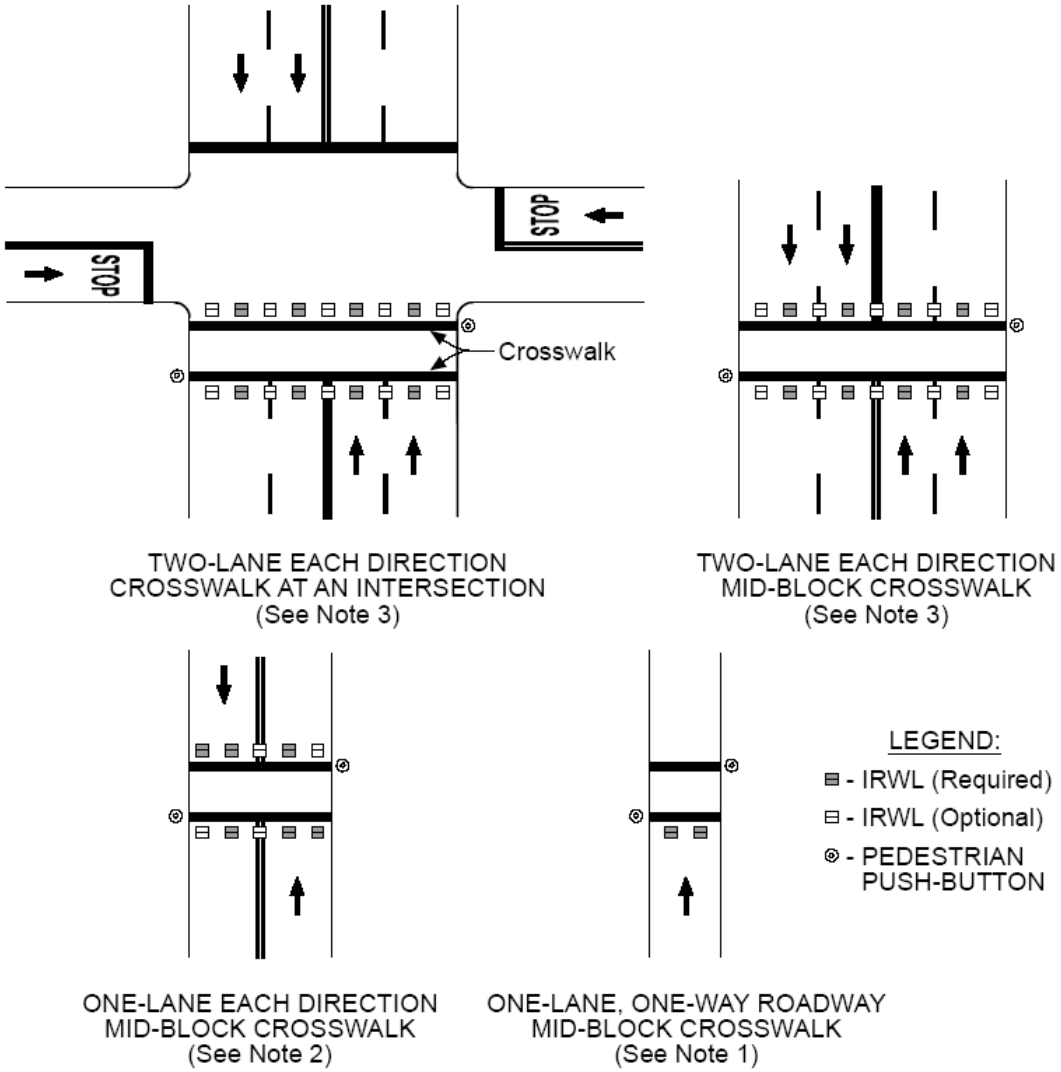
Typical applications of In-Roadway Warning Lights are shown in Figure 4L-101.

4L.101 In-Roadway Warning Lights at Crosswalks Financing and Maintenance-State Highways

Standard:

When In-Roadway Warning Lights are proposed by Caltrans on State highways, Caltrans shall pay the costs of installation and maintenance. When In-Roadway Warning Lights are proposed and installed by a local agency on State highways, the installation of In-Roadway Warning Lights shall be covered by an Encroachment Permit issued by the local District Director of Caltrans. The local agency shall be responsible for installation and maintenance of the In-Roadway Warning Lights.

Figure 4L-101
Typical Layout for In-Roadway Warning Lights (IRWLs)



NOTES:
1. One-Lane, One-Way Roadways, a minimum of two IRWLs shall be installed on the approach side ot the crosswalk.
2. One-Lane each direction, a minimum of three IRWLs shall be installed along both sides of the crosswalk.
3. Two-Lanes each direction, a minimum of one IRWLs per lane, shall be installed along both sides of the crosswalk.
4. IRWLs should be located off the tire tracks.